WHAT IS CLAIMED IS:

1. A heat sink comprising:

a first planar member having an upper face formed with a first groove portion;

a second planar member having a lower face formed with a second groove portion; and

a partition disposed between said upper face of said first planar member and said lower face of said second planar member;

said partition being formed with a hole for communicating a first space and a second space to each other, said first space being formed by said first groove portion and a lower face of said partition, said second space being formed by said second groove portion and an upper face of said partition;

said heat sink further comprising a supply port for supplying a fluid into said first space and a discharge port for discharging said fluid from said second space.

2. A heat sink according to claim 1, wherein an upper face of said second planar member has a heating element mounting area for mounting a heating element to be cooled,

said hole being disposed at a position opposing said heating element mounting area.

3. A heat sink according to claim 1, wherein a plurality of said holes are provided.

4. A heat sink according to claim 1, wherein said

hole has a sufficiently small cross section for injecting said fluid into said second space.

5. A heat sink according to claim 1, wherein a guide piece for restricting a direction in which said fluid is outputted from said hole to said second space is provided at an edge portion of said hole on said second space side.

6. A semiconductor laser apparatus comprising:

the heat sink according to claim 1; and

a semiconductor laser mounted on an upper face of said second planar member of said heat sink.

7. A semiconductor laser apparatus according to claim 6, wherein said semiconductor laser has a plurality of laser emission points arranged in a predetermined direction,

said predetermined direction being oriented so as to become substantially parallel to said upper face of second planar member.

8. A semiconductor laser stack apparatus comprising first and second heat sinks and first and second semiconductor lasers;

said first and second heat sinks being the heat sink according to claim 1;

said first semiconductor laser being held between an upper face of said second planar member of said first heat sink and a lower face of said first planar member of said second heat sink;

said second semiconductor laser being mounted on said upper face of second planar member of said second heat sink.

9. A semiconductor laser stack apparatus according to claim 8, wherein said first and second semiconductor lasers have a plurality of laser emission points arranged in a predetermined direction, said predetermined direction being oriented so as to become substantially parallel to said upper faces of first and second planar members.

10. A semiconductor laser stack apparatus according to claim 8, further comprising:

a supply tube connected to both of said supply port of said first heat sink and said supply port of said second heat sink; and

a discharge tube connected to both of said discharge port of said first heat sink and said discharge port of said second heat sink.

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